

controlling for age and gender effects on costs. Moreover, a propensity score matching analysis was used to test for robustness of the results. **RESULTS:** OAB patients caused additional annual costs of € 772 compared to non-OAB patients. Patients treated with Oxybutynin had the lowest additional costs (€ 660) while patients treated with Tolterodine yielded the highest additional costs (€ 1,049). In the special case of incontinence, patients treated with Solifenacin incurred the lowest additional costs (€ 1,242) and patients treated with Tolterodine the highest (€ 1,835). The lower treatment costs for Solifenacin are mainly driven by lower spending on medical aids, especially due to lower pad usage. All results are highly significant ($p < 0.01$) and propensity score matching produced similar findings. **CONCLUSIONS:** This study compares the annual cost of six anticholinergics for the treatment of OAB and incontinence in patients 40 years of age or older in Germany. OAB patients treated with Oxybutynin and incontinent patients treated with Solifenacin have shown the lowest additional cost. For both patient groups Tolterodine is associated with the highest additional cost of treatment.

PUK12

REAL-WORLD DOSE EQUIVALENCY AND COST COMPARISONS OF CONVERSIONS BETWEEN SEVELAMER HYDROCHLORIDE/CARBONATE AND LANTHANUM CARBONATE MONOTHERAPIES

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OBJECTIVES: To determine the real-world dose equivalency of sevelamer hydrochloride/carbonate (SH/C) and lanthanum carbonate (LC) monotherapies, and compare the drug costs associated with various dosages of SH/C versus conversion to LC. **METHODS:** Data were evaluated retrospectively for patients receiving hemodialysis in the US, who converted in either direction between SH/C and LC monotherapies, yet had similar phosphate (P) levels over the observation period. The study comprised a 90-day pre-conversion period followed by a 90-day post-conversion period. Serum P and daily P binder doses were assessed across six 30-day periods. Primary comparisons were based on data from the last month of each treatment period to allow for clinical equilibration. Drug cost assessments were based on prescription fills and REDBOOK pricing (Sept 2013). **RESULTS:** A total of 303 patients met study criteria: 128 converted from SH/C (mean dose ~8200 mg/day) to LC (~3400 mg/day) and 175 converted from LC (~3800 mg/day) to SH/C (~8600 mg/day). In the post-conversion, serum P ranged from 5.99±1.64 mg/dL to 6.43±1.87 mg/dL in patients converting from SH/C to LC, and from 6.18±1.68 mg/dL to 6.51±1.92 mg/dL in those converting from LC to SH/C. For combined patient cohorts, the overall dose equivalency of SH/C:LC was 2.27. Mean P binder costs were \$1080±491/patient/month with SH/C and \$1006±513 with LC. Mean cost differences between pre- and post-conversion phases, in either direction, were -\$74.20/patient/month (95%CI -141.80, -6.63; $p < 0.05$) in favor of LC. Cost differences between LC and SH/C were greatest (-\$359; 95%CI -485, -260; $p < 0.001$) in favor of LC, in patients receiving >7200 mg SH/C daily (50.7% of patients). **CONCLUSIONS:** Patients who converted between LC and SH/C monotherapies in either direction maintained similar P levels in both conversion phases. LC was 2.27 times as potent as SH/C on an mg-to-mg basis and was associated with significantly lower P binder costs.

PUK13

HEALTH CARE COSTS AMONG PATIENTS WHO CONTINUE THERAPY OR SWITCH ANTIMUSCARINIC AGENTS FOR OVERACTIVE BLADDER

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OBJECTIVES: To compare health care costs among patients who continued therapy or switched antimuscarinic agents for overactive bladder (OAB). **METHODS:** Patients initiating antimuscarinic therapy from 1/1/2007-3/31/2012 diagnosed with OAB were identified from a large claims database of privately insured patients. Patients were required to have no antimuscarinic claims in the 12 months before their antimuscarinic initiation (baseline period), continuous coverage for ≥12 months before and after antimuscarinic initiation, and age 18-64 years. Based on claims in the 6 months after antimuscarinic initiation, patients who continued index antimuscarinic therapy were categorized as persisters ($n=3,197$), and patients with a claim for a non-index antimuscarinic agent (without a gap >60 days after the end of index antimuscarinic treatment) were categorized as switchers ($n=828$). The study index date was defined as the date of switching from index antimuscarinic for switchers and a randomly assigned date (matching the distribution of time from initiation to switching) for persisters. All-cause and OAB-related costs (i.e., reimbursements to providers for medical and pharmacy claims) in the month prior to and 6 months after the index date were compared using generalized linear models controlling for baseline characteristics and baseline costs. **RESULTS:** Persisters compared with switchers were older and had lower baseline costs. After controlling for baseline characteristics and costs, all-cause and OAB-related costs in both the month before and 6 months after the index date were significantly lower among persisters than switchers (1 month before: all-cause \$1,222 vs. \$1,759, OAB-related \$142 vs. \$170; 6 months after: all-cause \$7,017 vs. \$8,806, OAB-related \$642 vs. \$797; all $p < 0.0001$). **CONCLUSIONS:** All-cause and OAB-related costs in the period immediately before and after switching were higher among patients who switched antimuscarinic therapies compared with patients who persisted on their index antimuscarinic therapy.

PUK14

MANAGEMENT OF ANEMIA AMONG CHRONIC KIDNEY DISEASE PATIENTS ON HEMODIALYSIS: A STUDY OF COST OF ILLNESS

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OBJECTIVES: To analyze the cost of illness in the management of anemia among chronic kidney disease (CKD) patients on hemodialysis. **METHODS:** Prospective observational study for a period 7 months was conducted after the approval of the protocol by the Ethics Committee. The patients on hemodialysis of both sexes aged between 18-75 years were enrolled in the management of anemia with erythropoietin (EPO). The data relating to the cost and the number of units for EPO, Iron and Vitamin supplements were recorded and computed on weekly basis. Hemoglobin levels were recorded every month. The average cost incurred was calculated for 7 months. **RESULTS:** The number of subjects included in the study was 62 out of 96 patients. The total number of EPO administered for 7 months was computed by adding all the doses for 7 months. On an average, each subject was administered 27.44 of EPO doses equivalent to 113001.35 IU. The Iron supplements and vitamins constituted 15.54 doses and 32.6 doses respectively. The response of above-mentioned treatment reflected in raise in 8.67 g/dl hemoglobin levels per patient per 7 months. The cost of EPO for doses administered was 111859.92 INR (1864.32 USD), Iron supplements 5594.4 INR (93.24 USD), Vitamin supplements 1587.83 INR (26.46 USD). In addition, the laboratory charges for the measurement of hemoglobin levels were 325 INR (5.41 USD) per patient per 7 months. **CONCLUSIONS:** Study reveals 64.58% of patients were economically sound to undergo the treatment with EPO. Eighteen patients were covered by Employees' State Insurance and 2 patients supported by their employers on reimbursement basis and the remaining 40 patients borne the expenses by themselves. The study revealed that the average cost in the management of anemia among chronic kidney disease patients on hemodialysis per patient per 7 months was 119367.15 INR (1989.45 USD).

PUK15

THE SOCIAL COST OF CHRONIC KIDNEY DISEASE IN ITALY

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OBJECTIVES: Chronic kidney disease (CKD) represents a major public health concern with a great economic burden. The aim of the study is to estimate the mean annual social cost of a patient with CKD by stage (IV and V pre-dialyses) and cost component in Italy. **METHODS:** The cross sectional study included all adult outpatients that were in charge of the 14 main Hospital Centers in the Tuscany Region during 7 week. Direct medical costs have been estimated using tariff for laboratory test, diagnostic exams, visits and hospitalization and price for drugs. Non medical costs included the cost of diet, patients and caregivers travel expenses, formal and informal care. The loss of productivity of patients and caregivers have been estimated as indirect costs using the human capital approach. Costs are expressed as mean (± standard deviation) in Euro 2012. **RESULTS:** 279 patients in stage IV and 205 patients in stage V have been enrolled. The estimated mean annual social cost of a patient with CKD were € 9,185 (± € 6,319) for stage IV and € 10,766 (± € 8,314) for stage V ($p < 0.05$). Direct medical costs were higher in stage V as compared to stage IV (€ 5,049 ± € 4,017 versus € 3,840 ± € 4,042, $p < 0.05$). Direct non medical costs and indirect costs accounted respectively for 32% and 26% of the total social cost for CKD stage IV and for 26% and 27% of the total social cost for CKD stage V. In Italy the overall annual social cost of CKD stage IV and V was € 2,158,903,299 representing the 0.14% of the GDP. **CONCLUSIONS:** Direct non medical costs and indirect costs represent the main component of the social cost of CKD. Patients, their families and the productivity system mainly sustain the burden of the disease.

PUK16

MEDICAL EXPENSE BURDEN OF EMPLOYEE'S HEALTH INSURANCE PARTICIPANTS WITH CHRONIC RENAL FAILURE IN CHINA

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OBJECTIVES: To investigate the employee's health insurance payment policy for stage-5 chronic renal failure patients treated with dialysis as well as stage1-4 patients, analyze payment levels of the insurance and out-of-pocket medical expense. **METHODS:** This study involved 8809 stage-5 chronic renal failure cases treated with dialysis and 14472 stage1-4 cases in 6 provincial capital & vice-provincial cities (Shenyang, Nanjing, Qingdao, Zhengzhou, Chengdu, Urumchi). The actual claim data of medical expenses and medical care utilization from 2008 to 2010 were collected. Descriptive analysis was applied to the data. The employee's health insurance payment policies of the 6 cities were reviewed. **RESULTS:** 1) All the cities provided both inpatient and outpatient medical expense payment for stage-5 chronic renal failure with dialysis, but for stage1-4 only 3 cities provided both inpatient and outpatient payment while the others did not pay for outpatient. 2) The actual payment levels of inpatient expense for dialysis ranged from 70% to 80%, and those of outpatient ranged from 70% to 90% in various cities. The out-of-pocket expense for inpatient and outpatient were US\$839 and US\$829, respectively. 3) In the 3 cities which provided both inpatient and outpatient payment for stage1-4 chronic renal failure, the actual payment levels for inpatient ranged from 64% to 77% and those of outpatient ranged from 61% to 75%. The out-of-pocket expense for inpatient and outpatient reached US\$510 and US\$464, respectively. **CONCLUSIONS:** Generally, health insurance for employees eased the economic burden of stage-5 patients with dialysis and made out-of-pocket expense acceptable. Provision of outpatient payment for stage1-4 patients is necessary in lowering the economic burden and meeting the outpatient service demand of the patients. Therefore, the employee's health insurance should strengthen medical service monitoring for dialysis, handle the catastrophic medical expense risk of stage-5 patients with extremely high medical expenses and provide outpatient payment for stage1-4 patients.

PUK17

COST OF ILLNESS ANALYSIS OF DIALYSIS IN DIFFERENT REGIONS OF RUSSIA

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OBJECTIVES: To analyze the cost of hemodialysis (HD) and peritoneal dialysis (PD) in different regions of Russia. **METHODS:** Open source information search. Direct cost analysis. **RESULTS:** During the information search current tariffs have been found for 25 regions for HD and for 11 regions for PD. Tariff per one HD procedure has ranged from \$ 96 for the republic Chuvashia to \$ 319 for the the Khanty-Mansi Autonomous Area, i.e. annual cost of the HD per patient amounted to \$ 14976 and \$ 49764, respectively. The cost of a single procedure HD in Moscow was \$ 162, which corresponds to an annual expenditure of approximately \$ 25272 per patient. The average cost of the procedure HD in the Russia amounted to about \$ 150 and the annual cost of HD for one patient - \$ 23400. The cost of one exchange PD ranged from \$ 15 in the Nizhny Novgorod region to \$ 84 in the Khanty-Mansi Autonomous Area. Thus, the annual costs on the PD upon 4 exchanges per day for per patient in these regions were \$ 21900 and \$ 122640, respectively. The cost of one PD exchange in Moscow was \$ 26, which corresponds to an annual expenditure of approximately \$ 37960 per patient. The average cost of one exchange PD in Russia amounted to \$ 22, and the average annual cost per patient - \$ 32120 (accepted exchange rate was 1 \$ = 33,35 RUB). **CONCLUSIONS:** Thus, during the cost analysis it has been revealed that the cost of dialysis among the subjects of Russia differs in more than 3 times, despite the fact that the same set of medical services is provided in each region.

PUK18

COST OF IN-PATIENT HOSPITALIZATIONS FOR CHRONIC KIDNEY DISEASE IN THE UNITED STATES

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OBJECTIVES: To understand the trends in rate and cost of hospitalizations due to Chronic Kidney Disease (CKD) in the U.S. **METHODS:** We analyzed the last five years of hospitalizations with ICD-9 diagnosis codes of CKD and End Stage Renal Disease (ESRD). The annual number of hospitalizations for specific diagnosis was obtained from AHRQ's National In-patient Sample (NIS) databases of 2005-2009. Data was also analyzed for length of stay (LOS), charges and cost of hospitalization. **RESULTS:** During the last five years the number of hospitalizations with diagnosis of CKD and ESRD has increased 4.1 and 4.6 fold, respectively. In 2009, an estimated 1,634,422 and 931,641 hospitalizations were with diagnosis of CKD and ESRD respectively. The mean LOS for patients with CKD increased from 4.9 to 5.5 days between 2005-2009. The mean LOS for patients with ESRD has remained steady at ~6 days between 2005-2009. The cost of hospitalization with diagnosis of CKD has increased 31% between 2005-2009. The cost of hospitalization with diagnosis of ESRD has increased 21% between 2005-2009. In 2009, the mean cost of hospitalization for patients with CKD and ESRD was \$11,209 and \$21,358, respectively. **CONCLUSIONS:** Hospitalizations due to CKD and ESRD have significantly increased during the last five years. There is a need for prevention, treatment, and disease management programs to lower the medical and socioeconomic burden of this disease.

PUK19

COSTS OF DELAYED GRAFT FUNCTION AFTER KIDNEY TRANSPLANTATION IN LIVING AND DECEASED DONOR RECIPIENTS

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OBJECTIVES: Although delayed graft function (DGF) on kidney transplantation outcomes have been associated with worse allograft and patient survival, the cost impact has not been recently explored using a large retrospective database and assessed after transplantation hospitalization. Our objective was to determine the financial impact of delayed graft function (DGF) in primary kidney transplant recipients of deceased (DD) and living donor (LD) recipients in the early post-operative and long-term follow-up periods. **METHODS:** A retrospective analysis of USRDS and Medicare claims from 2004-2009. Subjects excluded were multiple transplants, donor <5 yo, and transplantation payments <\$15,000. DGF was defined as requiring dialysis within the first week post-transplantation. Total direct medical costs were assessed for 1, 3, 6, 12, 24, and 36-month time intervals post-transplant. Uni-variate analyses of covariates were assessed for association with log-transformed charges. Significant variables (p<0.05) were included in multivariate regression. Base charge was calculated using an mean of standard demographic and outcome characteristics. **RESULTS:** After application of exclusion criteria and data validation, 22,616 DD and 7,373 LD recipients were evaluated. In multivariate analysis, DGF was an independent predictor of charges at 1, 3, 6, and 12 months of \$3,920 (p<0.0001), \$1,962 (p<0.0001), \$839 (p=0.006) and \$1,026 (p=0.019), respectively in DD. In LD, DGF was an independent predictor of charges at 1, 3, and 6 months of \$145 (p=0.012), \$4,558 (p<0.0001), and \$3,629 (p=0.001), respectively. **CONCLUSIONS:** DGF is a significant independent predictor of greater health resource utilization in renal transplantation that impacts costs beyond the transplant hospitalization. This impact extends longer in DD compared to LD. This information should be considered in addition to clinical outcomes expected based on the individual transplant candidate to determine likelihood of successful patient and allograft outcomes.

PUK20

COST-CONSEQUENCES ANALYSIS OF TREATMENT REGIMENS USED FOR THE MANAGEMENT OF LOWER URINARY TRACT SYMPTOMS (LUTS) ASSOCIATED WITH BENIGN PROSTATIC HYPERPLASIA (BPH)

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OBJECTIVES: Combination therapy with an α -blocker and an antimuscarinic is recommended for men with moderate-to-severe LUTS/BPH if symptom relief is

insufficient with monotherapy. We evaluated the cost and resource utilisation, in the UK health care system, of three treatment scenarios: tamsulosin (0.4mg) monotherapy; tolterodine (modified release, 4mg) + tamsulosin given concomitantly; and fixed-dose combination (FDC) of solifenacin 6mg + oral controlled absorption system [OCASTM] formulation of tamsulosin (TOCAS, 0.4mg). **METHODS:** A Markov model, with a monthly cycle length and 1-year time horizon, compared the cost of treating 1,000 men with LUTS/BPH who have moderate-to-severe storage symptoms and voiding symptoms. All patients were initially treated with tamsulosin monotherapy. Patients with inadequately controlled symptoms at week 12, based on Total Urgency and Frequency Score (TUFS), the daily sum of all recorded Patient Perception of Intensity of Urgency Scale [PPIUS] scores from micturition diaries), were considered for FDC solifenacin 6mg + TOCAS or tolterodine + tamsulosin. Patients adequately controlled at week 12 continued tamsulosin monotherapy. Thereafter, patients could discontinue therapy each month based on reported medication persistence data. Patients who discontinued treatment were eligible for surgery or other medical management. **RESULTS:** Compared with tamsulosin monotherapy, total costs per patient, over a 1-year time horizon, were reduced by £133.75 for tolterodine + tamsulosin and reduced by £154.85 for FDC solifenacin 6mg + TOCAS. **CONCLUSIONS:** Our findings suggest FDC solifenacin 6mg + TOCAS reduces annual health care costs compared with tamsulosin monotherapy and tolterodine + tamsulosin in patients with inadequately controlled storage symptoms. Lower total cost for FDC solifenacin 6mg + TOCAS and tolterodine + tamsulosin versus tamsulosin monotherapy was largely driven by improved symptom control. The relatively lower total cost for FDC solifenacin 6mg + TOCAS versus tolterodine + tamsulosin (£21 per patient/year) was principally due to improved persistence with FDC solifenacin 6mg + TOCAS.

PUK21

COST-EFFECTIVENESS OF A FIXED-DOSE COMBINATION OF SOLIFENACIN AND TAMUSULOSIN IN MEN WITH LOWER URINARY TRACT SYMPTOMS (LUTS) ASSOCIATED WITH BENIGN PROSTATIC HYPERPLASIA (BPH)

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OBJECTIVES: Combination therapy with an α -blocker and an antimuscarinic is recommended for men with moderate-to-severe LUTS/BPH if symptom relief is insufficient with monotherapy. We evaluated the cost-effectiveness of fixed-dose combination (FDC) solifenacin 6mg + oral controlled absorption system (OCASTM) formulation of tamsulosin (TOCAS, 0.4mg) versus tolterodine (modified release, 4mg) + tamsulosin (0.4mg) given concomitantly, from the perspective of the UK NHS. **METHODS:** A Markov model, with a time horizon of 1 year, was developed for men with LUTS/BPH who have moderate-to-severe storage symptoms (≥ 8 micturitions/day and ≥ 2 urgency episodes/day [Patient Perception of Intensity of Urgency Scale, PPIUS, grade 3 or 4]) and voiding symptoms treated with FDC solifenacin 6mg + TOCAS or tolterodine + tamsulosin. Treatment success was defined using the Total Urgency and Frequency Score (TUFS), the daily sum of all recorded PPIUS scores from micturition diaries). The phase 3 NEPTUNE study was used to estimate transition probabilities and utilities were derived from analysis of EQ-5D data. Other model input parameters included discontinuation rates, derived from a large UK database study (THIN). Univariate and probabilistic sensitivity analyses were performed. **RESULTS:** FDC solifenacin 6mg + TOCAS was associated with lower total annual costs (£520 vs £583) and increased quality adjusted life years (QALYs, 0.840 vs. 0.838), and was therefore dominant compared with tolterodine + tamsulosin. Time horizon, discontinuation/withdrawal rates, drug cost and utility values were the main drivers of cost-effectiveness. The probability that FDC solifenacin 6mg + TOCAS is cost-effective was 100% versus tolterodine + tamsulosin, at a willingness to pay threshold of £20,000/QALY gained. **CONCLUSIONS:** FDC solifenacin 6mg + TOCAS is dominant compared with tolterodine + tamsulosin for the treatment of men with LUTS/BPH who have moderate-to-severe storage symptoms and voiding symptoms. To our knowledge, this is the first cost-effectiveness analysis of a FDC in this patient population.

PUK22

ECONOMIC EFFECTS OF TREATMENT OF CHRONIC KIDNEY DISEASE WITH LOW-PROTEIN DIET

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OBJECTIVES: The most recent literature has shown extensively that a low protein diet in patients with Chronic Kidney Disease (CKD), delays the natural progression of the end stage renal disease (ESRD) and the necessary treatment of chronic dialysis. The aim of this study is to estimate the cost-effectiveness of a low protein diet compared with no dietary treatment in patients with CKD stage 4 and 5 after 2, 3, 5 and 10 years. **METHODS:** It was developed a Markov model to estimate costs and QALYs associated with low protein diet versus no treatment for patients with CKD stage 4-5. The transition probability was estimated on data from seven studies which determined the efficacy of low protein diets in delaying the need to start maintenance dialysis. Utilities and cost were estimated from literature review and projected for the lifespan considered in the model. The annual cost of dialysis per patient was approximately €34,072. The costs of a low-protein diet was €1,440 per patient per year in the Lazio Region (conservative assumptions). Probabilistic and Deterministic sensitivity analysis were performed. **RESULTS:** The model estimate that low-protein diet should be more effective. Dietary treatment improve 0.09 QALYs after two years, 0.16 after three years, 0.36 after five years and up to 0.93 incremental QALYs after the first 10 years. After two years the model estimate incremental cost in favour of dietary treatment of €1,325, €3,023, €6,906 and €13,829 for 2, 3, 5 and 10 years of follow-up respectively. **CONCLUSIONS:** The results of these simulations indicate that the treatment of CKD patients with a